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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/638.398 08/15/00 NAKAGAWA

K 35.C12475DIV

005514 MM92/0313  
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EXAMINER

MULPURI, S

ART UNIT

PAPER NUMBER

2812

DATE MAILED:

03/13/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trad marks

# Office Action Summary

Application No.  
**09/639,398**

Applicant(s)  
**Nakagawa et al**

Examiner  
**S. Mulpuri**

Group Art Unit  
**2812**



☒ Responsive to communication(s) filed on Feb 26, 1901

This action is **FINAL**.

Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

## Disposition of Claims

☒ Claim(s) 1-3, 5-8, 10-23, 25-67, and 82-110 is/are pending in the application.

Of the above, claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

☐ Claim(s) \_\_\_\_\_ is/are allowed.

☒ Claim(s) 1-3, 5-8, 10-23, 25-67, and 82-110 is/are rejected.

☐ Claim(s) \_\_\_\_\_ is/are objected to.

☐ Claims \_\_\_\_\_ are subject to restriction or election requirement.

## Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on \_\_\_\_\_ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☒ All ☐ Some\* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☒ received in Application No. (Series Code/Serial Number) 08/999,132.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\*Certified copies not received: \_\_\_\_\_

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 2

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

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### **DETAILED ACTION**

This application is continuation of parent application serial no. 08/999,132 is now published as US patent 6,190,937.

This application contains claims 82,83,85,86 drawn to an invention non-elected with traverse in Paper No. 5. A complete reply to the final rejection must include cancellation of non-elected claims or other appropriate action (37 CFR 1.144) See MPEP § 821.01. Applicant request for rejoining the group II with group I, based on an argument that the apparatus is uniquely designed to for forming the semiconductor member as claimed in group I, hence the search for group I includes group II. However, both inventions are distinct that the apparatus is used to process the substrate having no porous layer to form semiconductor member.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3,5,6-10, 19-23,25,29-30, 39-51,57, 60-67, 87,88-93, 102-110 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo, Yonehara or Matsushita et al or Sakaguchi in combination with Lindmayer (US 4,058,418).

Kondo et al teaches a method of making a solar cell by the following process steps: Forming porous layer on a surface of the first substrate, growing epitaxial layer by LPE, bonding second substrate to epitaxial layer;

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separating the first substrate from first substrate by utilizing the porous layer to transfer epitaxial layer to second substrate (see abstract and claim 1, col. 4, line 17). Yonehara and Matsushita et al or Sakaguchi et al teaches a method making solar cells including LPE, which is similar process as claimed(see abstract and claim 15 in Yonehara and claim 1 in Matsushita et al).Kondo, Yonehara or Matsushita et al all discloses forming growing silicon layer by LPE. Sakaguchi further discloses leaving portion of porous layer on the first substrate.

None of the references teaches some particulars of the LPE condition as instantly claimed.

Lindmayer discloses combination VPE and LPE for producing solar cells by the following process steps: Forming silicon coating layer "7" from silicon melt containing dopants such as indium; forming a seed "8" by VPE, and then forming silicon layer"9"(see the whole description). It would have been obvious to one of ordinary skill in the art to implement the combination LPE and VPE in the process of Kondo or Yonehara or Matsushita or Sakaguchi et al because the Lindmayer teaches Lindmayer process is suitable for making solar cell. Melting solution in which elements for forming a semiconductor layer to be grown is dissolved to a desired solution is inherent in the invention of Lindmayer.

As claimed in claims 102,104,109,110 with respect to impurity doping into transferred layer is obvious process steps to form pn junctions, thereby completing semiconductor such as solar cells.

Claims 58 and 59 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo, Yonehara or Matsushita et al or Sakaguchi in combination with Lindmayer (US 4,058,418). as

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applied to claims 1-3,5,6-10, 19-23,25,29-30, 39-51,57, 60-67, 88-93,102-110 above, and further in view of Hokuyou.

Hokuyou teaches, after bonding and separating the first substrate for making solar cells, first substrate can be used to repeat the same process for making solar cells(see col. 3, lines 54-56). It would have been obvious to one of ordinary skill in the art to use the substrate for making another set solar cells by using the same first substrate and thereby reducing the cost and weight.

Claims 11-18, 31-38, 94-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kondo, Yonehara or Matsushita et al or Sakaguchi in combination with Lindmayer (US 4,058,418) as applied to claims 1-3,5,6-10, 19-23,25,29-30, 39-51,57, 60-67, 88-93, 102-110 above, and further in view of Sullivan et al.

None of the references teach using water soluble adhesive on the second substrate before bonding. Sullivan teaches forming adhesive e.g., resin or glue on the porous substrate "26" ; bonding the substrate "26" with first substrate "20" having plural device layers followed by release of first substrate "20"; then bonding the second substrate "26" having device layers to third substrate "30"; Sullivan further teach solvent, which is dissolvable adhesive will go to porous substrate "26" to promote fast release. Releasing the second substrate from third substrate is by using chemical technique to dissolve the adhesive, which could be inherently water to leave the device layers on third substrate "30" (see figs 2 A-2 F and detailed description).

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### ***Double Patenting***

1. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321© may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

2. Claims 1-3, 5-8, 10-23,25-67,82-110 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-14 of U.S. Patent No. 6,190,937. Although the conflicting claims are not identical, they are not patentably distinct from each other because the scope is broader in all instant independent claims with respect to patented independent claim , which includes "growing a first thin-film semiconductor layer on a surface of the porous layer in vapor phase by decomposing source gas", and such scope is encompassed by the scope of the patented claims.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art , in general, teaches method of making solar cell.


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Any inquiry concerning this communication or earlier communications from the examiner should be directed to S. Mulpuri whose telephone number is (703) 305-5184. The fax phone number for the organization where this application or proceeding is assigned is (703) 308-7722.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-4900.



S. Mulpuri

Patent Examiner

Technology Center 2800

SM

3/10/01